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15 January 1974

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MEMORANDUM TO: [REDACTED]
OTR Registrar

SUBJECT : CIA Training in Analytical Methodology

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1. The attached report of subject training within the Agency is part of a Community survey conducted by [REDACTED] a former CIA employee, a little over a year ago. Since one of the disciplines recently identified for Community review is Analytical Methodology training, it would be very helpful to us if you would have this report reviewed and updated in order to preclude our walking back through previously trodden ground. I am requesting similar action from INR and DIA. Once we've received the updated reports and reviewed them together with materials presently being compiled by [REDACTED] a Staff consultant who is working on Analytical Methodologies being used by external sources, we'll then commence a series of Community meetings to discuss the state of the art and new approaches which might enhance Community capability in this vital area.

2. I would much appreciate receiving an updated version of the attached by 15 February 1974.

[REDACTED]
DCI/IC/PRG/SP

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Attachment

EX-101 IMPDET CL BY 018357

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Central Intelligence Agency
Training in Analytical Methodologies
For Intelligence Production Analysts

A. Introduction

1. The Central Intelligence Agency provides training for its analysts on several levels and at different stages in the analyst's career. This annex will describe the types of training given to acquaint newcomers with the analytical problems encountered in the production offices of CIA and the types of intelligence writing which they will be called on to produce, and will describe the training available to some of the more experienced analysts later in their careers which can involve relevant new analytical techniques. This discussion will not deal with the entire range of training available to CIA employees, but will focus only on training involving techniques applicable to the intelligence production process.

B. Initial Training of Production Analysts

2. Production analysts entering on duty at the present time are either direct-hire personnel who are assigned immediately to production offices, or Career Trainees recruited for eventual placement in a component not determined at the time of their recruitment. Direct-hire personnel are selected on the basis of their background, including area or subject knowledge, and experience with the type of subject matter with which they will be dealing in their new job. These people are given less initial formal training than the Career Trainees.

3. Shortly after their entry on duty, both direct-hire and Career Trainee recruits are sent to the Office of Training (OTR) for a four week "Intelligence and World Affairs" course which has the following objectives:

a. Introduction to the fundamentals of intelligence and the relationship of the intelligence process to U.S. foreign policy and national security.

b. Presentation of an overview of CIA and the relationship of CIA's organization and functions to U.S. intelligence services.

c. An exploration of problems related to the USSR, the People's Republic of China, and the Third World as intelligence targets.

4. No specific training in analytical techniques is given in this course, although much time is devoted to talks by representatives of the various CIA production offices on the substantive problems with which they are concerned. There is a brief introduction to analysis as performed in current and estimative intelligence writing and such specialties as photo and traffic analysis. Direct-hire analysts normally are given no training other than this initial four week course at this point in their careers.

5. The Career Trainee is given a much longer indoctrination in Agency organization, problems and methods than the direct-hiree. Currently about 60 Career Trainees enter the Agency each year, and their overall indoctrination and testing and evaluation consume several months before they are assigned for permanent duty with a component of the Agency. Two Career Trainee courses are given each year and include the "Intelligence Production Course" for those Trainees (currently about 40 percent of the Career Trainees) who are destined for duty in the production offices.

6. This OTR course is full time for eight weeks and is intended to familiarize the student with the functions of the Directorate of Intelligence and with the problems of producing and obtaining the necessary coordination from various finished intelligence units of the Directorate of Intelligence and other Agency and non-Agency offices. The student is given personal contact with working analysts and office managers, the opportunity to learn from the presentations of case studies by experienced analysts, and the challenge of carrying out a research project.

7. One week of the Intelligence Production Course involves training at the Information Science Center of OTR at which the Career Trainees are introduced to information and decision theory and are shown how they might utilize computers in their analytical work. Lectures and exercises are given in intelligence applications of probability, statistics, decision trees, expected value, operations research, computer terminal operations, Bayes' Theorem, correlation and regression analysis, network analysis, linear programming, queuing theory, and computer storage and retrieval. Obviously, this one-week course is not designed to provide comprehensive training in such analytical methodologies, but it is intended to make CTs aware of some of the newer ideas and techniques in information processing for their future use as intelligence analysts.

8. Finally, the CTs are given a one-week course in the "Techniques of Intelligence Writing" which endeavors to familiarize them with major intelligence writing and reporting concerns of the DDI. The course deals with samples of key intelligence production in selected DDI offices, using actual writing assignments based on intelligence information from these offices. The course also stresses the role and mechanism of interagency coordination of the finished intelligence product.

C. Post-Entry Training by OTR

9. After entry on duty as a production analyst, further formal training in analytical techniques is very much dependent upon the type of analysis an employee is called upon to perform, the needs and time constraints of the office to which he is attached, and his own perceived needs for further training. The several ways in which a CIA production analyst can receive additional training in analytical techniques are outlined below.

10. During the coming year, the Information Science Center (ISC) of OTR will conduct three courses in analytic techniques for production analysts and supervisors. This is the first year in which CIA will have responsibility for the ISC, which was established and originally operated by the Defense Intelligence Agency. The ISC program is presently limited by small faculty size, space problems and in its access to computer terminals.

a. Functions Course

This course, titled "Application of Information Science for ~~to~~ Intelligence Functions," is a four-week effort (which is to be extended to about six weeks), nearly all of which addresses ^{WIA} problems of intelligence production. The course is designed to "introduce career intelligence professionals to the basic elements of the interdisciplinary field of Information Science." Students are taught to use and "converse with" a computer terminal as a basic tool in their work. They are given a "fundamental knowledge of computer systems, operations research, systems analysis and design, probability theory, information storage and retrieval systems, modeling gaming and simulation, etc." Time is devoted to exercises and case studies in which the students gain experience in applying such techniques as linear programming, queuing, network analysis, correlation and regression, etc. to an actual, logically synthesized intelligence problem.

The objectives are to familiarize the students with the terminology and basic techniques of information science; to develop their capability to identify and define problems of professional intelligence interest by using information science techniques, and to solve such problems at the elementary level; to improve

student capabilities to communicate with information science professionals on more difficult problems and requirements; to encourage the students to pursue the development of their own and their agency's information science resources and capabilities; and to provide a wider range of rational choices to professional intelligence officers in the analysis, problem solving, and decision-making tasks of their functional areas of responsibility through an introduction to the basic tools and language of information science. This course is believed to be the only formal training course conducted in the United States which applies the information science methodologies directly to intelligence tasks, using live raw intelligence information.

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Enrollment is limited to 26 students, ~~nine~~ of whom are from CIA production offices, ~~seven~~ from NSA, ~~five~~ from DIA, and ~~two~~ from the military services.

b. Survey of Intelligence Information Systems

This is a three-week course for intelligence professionals in grades GS-09 to GS-15. It provides an overview of the information and intelligence systems of the intelligence community, with special emphasis on automated and/or computer assisted systems. It is thus intended to acquaint analysts with the intelligence community's information system capabilities.

Information Managers

c. Management Science for Intelligence

This is a one-week course for managers to emphasize the application of computers, information science, systems analysis and Operations to the management of intelligence activities. The course also covers the application of analytical techniques to substantive intelligence production, and OTR is hopeful that one of its side effects will be to persuade managers that the rapidly burgeoning field of information science has across-the-board implications in intelligence problem solving.

d. Mid-Career Course

OTR conducts the "Mid-Career Executive Development Course" for 34 students four times per year. The objective of this six-weeks/course is to provide an opportunity for promising officers at the mid-career level from all components of CIA to widen their understanding of management practices, current developments and problem areas, both in CIA and in the intelligence community as a whole, and major issues of concern to the United States Government, primarily in the international field. Beginning

this year a portion of this course - how much is still uncertain - will be conducted at the Information Science Center to give the students an introduction to the new analytical techniques. It is planned that about half of the period with the ISC will be devoted to application of these techniques to intelligence production and half to their use in management. The intention is to show the students the applications and limitations of techniques such as network analysis, decision theory and linear programming.

e. Senior Seminar, etc

817 An introduction to advanced analytical methodologies also is now included in the Senior Seminar, a nine-week course conducted at irregular intervals, which is open to selected individuals in Grades GS-15 and above. The Information Science Center portion of the Senior Seminar will put somewhat more emphasis on the use of information sciences in management than is the case for the Mid-Career Course, but about 40 percent of the period will be devoted to the application of these techniques to the production of intelligence.

D. Training in CIA Components Other than OTR

11. CIA components, other than the Office of Training, conduct on-the-job programs and formal courses to meet specialized internal requirements. On-the-job training can be described as an informal apprenticeship with instruction and close supervision provided by senior analysts to new or junior employees actually engaged in desk work. In more formal component training, the Office of Training may contribute elements to specific training programs and courses, correlate OTR courses to provide an integrated program with component efforts, and give advice and assistance to components in initiating and conducting courses.

a. Office of Computer Services. OCS provides training in the use of Agency computers and software for all CIA components having a need for training in existing CIA computer programs. The primary training is in the basic ADEPT course - 15 weeks of full-time schooling in computer programming. Students are taught two different programming languages and are provided thorough exposure to IBM operating systems and hardware. Programming techniques and documentation standards are also covered. For users or potential users, at any grade level, OCS also conducts three-day orientation courses on automatic data processing systems, particularly in their application to the Agency's management of information. The instruction is intended to arouse curiosity about computers and to stimulate thinking about what ADP might do for a wide variety of users. Six courses are normally conducted each year, with each class accommodating about 50 students.

b. Office of Economic Research. OER currently conducts a 16-week course once each year, entitled "Introduction to Computer Applications in Economic Intelligence," which is designed to familiarize OER analysts with FORTRAN programming and its application to problems in economic intelligence. About 20 students, some of whom are from the Office of Strategic Research, are accommodated in each class. The first two weeks of instruction, given by the Office of Computer Services, is an introduction to FORTRAN; the remainder is devoted to introduction of Massager and Databank, index numbers and growth problems, regression analysis, matrix manipulation for input-output, and job control language. The intent is to show how analysts can apply ADP and quantitative methods to their problems in economic intelligence.

c. Office of Strategic Research. OSR is increasingly using computer assistance in its analytical work. OSR analysts receive basic computer indoctrination in courses given by the Office of Computer Services, including ADP orientation, programming languages, the OCS Interactive System, and the IBM 360 Operating System. Such training enables them to use OSR's large data system (QUICKTRAK), the strategic cost analysis model (SCAM), the arsenal exchange model (AEM), and several other OSR computer files and research tools.

d. The Directorate of Science and Technology. DDS&T sponsors a five day course called "Operations Research, Systems Analysis and Automation in Control of Large Systems," currently under contract to Wiley Systems, Incorporated. This course is intended to acquaint a broad spectrum of Agency analysts and managers from all directorates with the possible applications of the information sciences to specific and general intelligence problems. It is not intended to produce operations researchers, but to create an atmosphere of receptivity to the expanded use of the information sciences throughout the Agency. The course accommodates about 28 students and will be held five times in the coming year. The stated objectives of the course are as follows:

- "1. To direct thinking about complex, large-scale systems problems in a manner which is structured, logical and objective, which complements existing viewpoints gained through experience and intuition and which balances sweeping generalizations and overpowering detail.
2. To modify parochial points of view about complex, large scale systems problems developed as a natural result of the unavoidable specialized nature of many jobs.

3. To present justifications and rational means for recognizing and adapting to the interactions between human resources and automation technology as well as relating to them as separate entities.
4. To provide more rigorous definitions of systems problems in order to create manageable approaches to difficult problems having no ready-made solutions and to distinguish between areas where intuitive judgment must be applied and where quantitative-computer techniques are possible.
5. To provide bases for assessing the performance effectiveness of complex, large-scale systems in the light of available techniques and technology.
6. To examine the validity of systematic, quantifiable and automated approaches to problem-solving in a climate where fresh points of view and diverse values are stated, compared and judged."

The course includes lectures on probability and statistics, the nature of systems analysis, systems theory and development, operations research, linear programming, network analysis, dynamic programming, game theory, queuing theory, simulation, applications of operations research, computer and information systems and applications, cybernetics, technological forecasting, and dynamic modeling of large-complex systems.

E. External Training

12. Training of CIA production analysts outside the Agency is conducted both through inter-agency programs of the U.S. Government and at non-Government facilities. CIA sends personnel from intelligence production offices to courses in the information sciences conducted by the U.S. Civil Service Commission, the U.S. Department of Agriculture, the Brookings Institution, and various universities, private corporations and non-profit analysis centers. The instruction ranges from one or two-day seminars to full-time university attendance..

13. The majority of the students attend courses involving familiarization with computers and computer programming, but available records indicate that during the past five years some 70 production analysts and managers have attended 28 courses involving analytical techniques, information theory, systems analysis and the like. As might be expected, more than 90 percent of the attendance at external training courses involving analytical methodologies has been from production offices dealing with statistical and "hard science" information, such as OSI, OER and OSR. In contrast, only four attendees were identified with OCI, ONE and OBGI.

(14. Production analysts and managers at CIA, as they reach Grade GS-14 or GS-15, may be selected to attend the National War College or one of the service war colleges. The curricula at these schools has included exposure of the students to systems analysis and operations research techniques of at least potential application to intelligence analytical tasks. The current trend is toward providing more of such training at the war colleges.

d. Systems Dynamics: Principles and Applications

This three-week course is designed to provide a level of expertise in systems dynamics methodology which will enable intelligence analysts, managers, and others in fields appropriate for the methodology, to confidently determine whether the methodology should be employed in dealing with any particular problem. The course consists of lectures in theory, case studies or illustrative examples, and workshop practice in using computer terminals and a time-sharing facility to progress from simple to complex practical exercises in applying the methodology.

e.f. Special Workshops

Special courses are designed and presented to ~~train~~ provide training in particular fields. A four-week course, Information Science for Financial Managers, is presented about once yearly for specialists in this field. A second course, Information Science for Image Analysts, ~~has been~~ is in the late stages of development. This ~~course will be presented~~ two-week course will be presented twice a year. Other special courses are currently under consideration.

f.g. COINS Workshop

A two-week course to provide analysis with a working knowledge of the COINS system is ~~presented~~ *planned for presentation* approximately ten times a year to Community classes of about twenty-five each. The ~~basic~~ basic structure of the system, the files, and the ~~computer terminal practices associated with the system~~ *computer terminal practices associated with the system* are ~~presented~~ *covered* through classroom lectures and actual practice in the system.

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g.h. Senior Seminar, Advanced Management,

Brief overviews of information science as a part of many courses in OTR and the Defense Intelligence School. These blocks of instruction vary from a few days to two weeks in length depending on the course. In general, some classroom exercises and actual practice in applying the various methodologies is included in these overviews. The content varies considerably; topics are selected which are most relevant to the objectives of the course and the level of experience and interest of the attendees.